

## All About Glass



Glass recycling is a complicated subject, and probably nothing like what you're imagining. We detailed the specific steps of how glass is recycled in Vermont in "The Rocky Road of Glass Recycling—Part 2 of our Keep Calm and Recycle On" series. In this article, we dig even deeper into the history, current realities, and future hopes for the 6,500 tons—that's 13 million pounds!—of glass bottles and jars recycled every year by CSWD.

### 1993: A new era begins.

To explain how glass—or any—recycling works, we need to go back to its roots. In Vermont, those roots reach all the way back to 1987, when the State Legislature passed Act 78, Vermont's first solid waste law. This heralded the end of the town "dumps," and the start of recognizing that we needed a new, modern way of managing our solid waste.

Part of that new approach was creating Solid Waste Management Districts to provide regional solutions for solid waste management. The Chittenden Solid Waste District

(CSWD) covers Chittenden County. In 1993, CSWD's Board of Commissioners, representing our 18 member municipalities, voted to enact mandatory recycling for all Chittenden County residents and businesses "so as to prolong the useful life of landfills and to protect the public health and welfare and the environment."

That's when it became against the law in Chittenden County to put glass bottles and jars and certain other recyclables in the trash.

In April of 1993, CSWD opened a Materials Recovery Facility (MRF) in Williston to sort those recyclables so they could be sold to buyers willing and able to use them as raw materials for new products. (See CSWD Glass Recycling Investments sidebar.)

### 1994: Market realities hit.

When the MRF opened, about 60 percent of the glass sent there arrived in pieces large enough for workers to hand-sort it by color—green, amber and clear. Only the clear and green qualify as potential "cullet." That's the name for glass suitable for making into new bottles. CSWD sent this material as far away as Massachusetts, New Hampshire and Canada to be cleaned and processed further for possible recycling into new bottles and other products like fiberglass.



*Glass Cullet*

The remaining 40 percent arrived in pieces too small to sort. The only option left for this multicolored mixture and the sorted brown glass was a product known as Processed Glass Aggregate (PGA). In the construction industry, "aggregate" is a broad category of coarse to fine mined materials such as gravel, crushed stone, and sand. Vermont quarries mine and sell hundreds of thousands of tons of aggregate each year for construction projects.

Processed Glass Aggregate, not surprisingly, is much like sand and can be used in many of the same ways in place of sand mined from quarries.



*Processed Glass Aggregate at the CSWD MRF*

of Natural Resources (ANR) defined what qualifies as PGA, and listed the types of civil engineering applications where PGA can be used.

### **2003: New systems for a new decade.**

In 2003 CSWD converted the MRF to what is known as a “single-stream” facility. This meant that residents and businesses could put all clean recyclables together in a single container instead of keeping containers in one bin and paper and cardboard in another. This reduced truck traffic

By 1994, prices for recycled glass cullet were dropping, and MRFs everywhere were struggling to cover the costs of shipping heavy glass bottles and jars to distant facilities able to process cullet acceptable for new bottle and jars.

Recognizing this, the Vermont Agency

by enabling haulers to collect all recyclables at once; some collect trash and recyclables in special trucks with separate compartments. The added convenience for residents and businesses resulted in more recyclables being kept out of the landfill.

From this point forward, all glass coming into the MRF becomes Processed Glass Aggregate.

### **2014 and beyond: Innovation.**

CSWD is committed to innovation. As the industry and technology changes, we’re constantly evaluating our processes and seeking improvements.

In 2014, CSWD invested \$1.9 million into replacing and upgrading MRF sorting machinery to improve efficiency and the quality of the output. Increased efficiencies mean lower costs throughout the system, and higher quality output gives us access to more markets, closer to home. We doubled down on this effort by investing half a million dollars into a new secondary glass cleanup system in 2015.

With this new machinery and exciting new projects with the Vermont Agency of Transportation and the University of Vermont Department of Civil and Environmental Engineering, we are exploring brand new PGA applications. We believe these projects will ensure we can continue to keep this material out of the landfill and into beneficial uses, reduce traffic and emissions by keeping it close to home, and in the not-too-distant future, even bring in some revenue to cover the costs.